

1 **CLAIMS:**

2  
3 1. A method for facilitating the insertion of information into a video  
4 signal, the method comprising:

5 embedding an information pattern in one or more regions of the video  
6 signal, a region comprising a plurality successive frames;

7 wherein, for one or more regions, the information pattern is embedded into  
8 a frame of a region with a relative degree of intensity and ~~relative~~one oneOne or more  
9 frames of that region have the patterns embedded therein which have a relative  
10 intensity~~relative~~ that differs from the relative intensity of the pattern embedded in  
11 other frames of the region.

12  
13 2. A method as recited in claim 1 for facilitating the protection of a  
14 video signal, wherein the information pattern is a watermark.

15  
16 3. A method as recited in claim 1 further comprising locating the one  
17 or more regions of the video signal for embedding an information pattern therein.

18  
19 4. A method as recited in claim 1 further comprising randomly locating  
20 the one or more regions of the video signal for embedding an information pattern  
21 therein.

1           **5.**     A method as recited in claim 1 further comprising locating the one  
2 or more regions of the video signal by randomly selecting frames of the signal,  
3 where each of the regions includes at least one of the selected frames.

4  
5           **6.**     A method as recited in claim 1 further comprising specifying the  
6 dimensions of the one or more regions of the video signal.

7  
8           **7.**     A method as recited in claim 1 further comprising determining hash  
9 values of one or more frames of one or more of the regions of the video signal.

10  
11           **8.**     A method as recited in claim 1 further comprising:  
12 determining hash values of one or more frames of one or more of the  
13 regions of the video signal;  
14 persisting the hash values with an association with the video signal.

15  
16           **9.**     A method as recited in claim 1, wherein, for one or more regions, the  
17 information pattern is embedded into a frame of a region in a plateau-shaped  
18 manner.

19  
20           **10.**    A method as recited in claim 1, wherein, for one or more regions, the  
21 relative intensity of information pattern embedded into a group of successive  
22 frames of the plurality of a region is substantially identical.

1           **11.**    A method as recited in claim 1, wherein, for one or more regions, the  
2 relative intensity of information pattern embedded into a group of successive  
3 frames of the plurality of a region is approximately similar.

4  
5           **12.**    A method as recited in claim 1, wherein, for one or more regions, the  
6 relative intensity of information pattern embedded into a group of successive  
7 frames of the plurality of a region is gradient.

8  
9           **13.**    A modulated video signal generated in accordance with a method as  
10 recited in claim 1.

11  
12           **14.**    A computer-readable medium having computer-executable  
13 instructions that, when executed by a computer, performs a method as recited in  
14 claim 1.

15  
16           **15.**    A computer comprising one or more computer-readable media  
17 having computer-executable instructions that, when executed by the computer,  
18 perform a method as recited in claim 1.

19  
20           **16.**    A method for facilitating the protection of a video signal, the method  
21 comprising:

22           locating one or more watermark regions of a video signal for embedding a  
23 watermark therein, a region comprising a plurality successive frames;

24           for one or more watermark regions, embedding a watermark in a watermark  
25 region in an approximate plateau-shaped manner.

1  
2       **17.** A method as recited in claim 16, wherein the watermark is  
3 embedded into a frame of the region with a relative degree of intensity and  
4 relativeOne or more frames of that region have a watermark embedded therein which  
5 has a relative intensity<sub>relative</sub> that differs from the relative intensity of the  
6 watermark embedded in other frames of that region.

7  
8       **18.** A method as recited in claim 16, wherein the locating comprises  
9 randomly locating the one or more regions.

10  
11       **19.** A method as recited in claim 16, wherein the locating comprises  
12 randomly locating the one or more regions by randomly selecting frames of the  
13 signal, where each of the regions includes at least one of the selected frames.

14  
15       **20.** A method as recited in claim 16 further comprising specifying the  
16 dimensions of the one or more regions of the video signal.

17  
18       **21.** A method as recited in claim 16 further comprising determining hash  
19 values of one or more frames of one or more of the regions of the video signal.

20  
21       **22.** A method as recited in claim 16 further comprising:  
22 determining hash values of one or more frames of one or more of the  
23 regions of the video signal;  
24 persisting the hash values with an association with the video signal.  
25

1           **23.**    A method as recited in claim 16, wherein, for one or more regions,  
2    the information pattern is embedded into a frame of a region in a plateau-shaped  
3    manner.

4  
5           **24.**    A method as recited in claim 16, wherein, for one or more regions,  
6    the relative intensity of information pattern embedded into a group of successive  
7    frames of the plurality of a region is substantially identical

8  
9           **25.**    A method as recited in claim 16, wherein, for one or more regions,  
10   the relative intensity of information pattern embedded into a group of successive  
11   frames of the plurality of a region of a region is approximately similar.

12  
13           **26.**    A method as recited in claim 16, wherein, for one or more regions,  
14   the relative intensity of information pattern embedded into a group of successive  
15   frames of the plurality of a region is gradient.

16  
17           **27.**    A modulated video signal generated in accordance with a method as  
18   recited in claim 16.

19  
20           **28.**    A computer-readable medium having computer-executable  
21   instructions that, when executed by a computer, performs a method as recited in  
22   claim 16.

1           **29.** A computer comprising one or more computer-readable media  
2 having computer-executable instructions that, when executed by the computer,  
3 perform a method as recited in claim 16.

4  
5           **30.** A method for facilitating the protection of a video signal, the method  
6 comprising:

7           fully encoding one or more frames of a region of a video signal with a  
8 watermark, wherein such frames are fully encoded with the watermark relative to  
9 unmarked frames;

10           partially encoding one or more frames of the region with the watermark,  
11 wherein such frames are partially encoded with the watermark relative to the  
12 frames of the fully encoding.

13  
14           **31.** A modulated video signal generated in accordance with a method as  
15 recited in claim 30.

16  
17           **32.** A computer-readable medium having computer-executable  
18 instructions that, when executed by a computer, performs a method as recited in  
19 claim 30.

20  
21           **33.** A computer comprising one or more computer-readable media  
22 having computer-executable instructions that, when executed by the computer,  
23 perform a method as recited in claim 30.

1           **34.**    A method for facilitating the protection of a video signal, the method  
2 comprising:

3           fully encoding one or more frames of a region of a video signal with a  
4 watermark, wherein the frames are fully encoded with the watermark relative to  
5 unmarked frames;

6           gradiently encoding at least one plurality of successive frames of the region  
7 with the watermark, wherein the plurality is gradiently encoded with the  
8 watermark relative to the unmarked frames and the fully encoded frames of the  
9 fully encoding.

10  
11           **35.**    A modulated video signal generated in accordance with a method as  
12 recited in claim 34.

13  
14           **36.**    A computer-readable medium having computer-executable  
15 instructions that, when executed by a computer, performs a method as recited in  
16 claim 34.

17  
18           **37.**    A computer comprising one or more computer-readable media  
19 having computer-executable instructions that, when executed by the computer,  
20 perform a method as recited in claim 34.

1           **38.**    A method for facilitating the protection of a video signal, the method  
2 comprising:

3           generating one or more frames of a subject video signal to produce a  
4 representative identification (“rep\_id”) for such frames, wherein a rep\_id of a  
5 frame is based upon inherent characteristics of such frame;

6           comparing the representative identification for the frames to a set of one or  
7 more expected rep\_ids;

8           selecting one or more detection frames of the subject video signal, wherein  
9 the generated rep\_id of a detection frame substantially correspond to the an  
10 expected rep\_id of the set.

11  
12           **39.**    A method as recited in claim 38 further comprising:

13           examining the one or more detection frames;

14           determining whether a watermark is present based upon such examining  
15 and without access to a known pristine specimen of the video signal.

16  
17           **40.**    A method as recited in claim 38 further comprising:

18           examining the one or more detection frames;

19           determining whether a watermark is present based upon such examining.

20  
21           **41.**    A method as recited in claim 38 further comprising:

22           examining the one or more detection frames and frames surrounding one or  
23 more detection frames;

24           determining whether a watermark is present based upon such examining.  
25



1           **42.**    A method as recited in claim 38, wherein the rep\_id of a frame  
2 comprise a hash value of the frames.

3  
4           **43.**    A method as recited in claim 38, wherein the set of one or more  
5 expected rep\_ids comprise a hash value of frame of an original signal within  
6 which a watermark is embedded.

7  
8           **44.**    A computer-readable medium having computer-executable  
9 instructions that, when executed by a computer, performs a method as recited in  
10 claim 38.

11  
12           **45.**    A computer comprising one or more computer-readable media  
13 having computer-executable instructions that, when executed by the computer,  
14 perform a method as recited in claim 38.

1           **46.**    An information pattern encoding system, the system comprising:  
2           a video signal obtainer configured to obtain a video signal;  
3           a region locator configured to locate one or more regions of the video  
4           signal, a region comprising a plurality successive frames;  
5           a region marker configured to embed an information pattern in one or more  
6           regions of the video signal, a region comprising a plurality successive frames,  
7           wherein, for one or more regions, the information pattern is embedded into a  
8           frame of a region with a relative degree of intensity and ~~relativelone one~~One or more  
9           frames of that region have the patterns embedded therein which have a relative  
10          intensity~~relativel~~ that differs from the relative intensity of the pattern embedded in  
11          other frames of the region.

12  
13           **47.**    A system as recited in claim 46, wherein the information pattern is a  
14          watermark.

1        48.        A watermark detecting system, the system comprising:

2        a video signal obtainer configured to obtain a subject video signal;

3        a frame locator configured to:

- 4            • generate one or more frames of the subject video signal to produce a  
5            representative identification (“rep\_id”) for such frames, wherein a  
6            rep\_id of a frame is based upon inherent characteristics of such  
7            frame;
- 8            • compare the representative identification for the frames to a set of  
9            one or more expected rep\_ids;
- 10           • select one or more detection frames of the subject video signal,  
11           wherein the generated rep\_id of a detection frame substantially  
12           correspond to the an expected rep\_id of the set;

13        a watermark detector configured to:

- 14           • examine the one or more detection frames;
- 15           • determine whether a watermark is present based upon such  
16           examining and without access to a known pristine specimen of the  
17           video signal.